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the forms and venation of these fossil leaves. The region is well worth the time and attention of working botanists, both in recent and fossil botany; and will doubtless ere long receive its due share of exploration and study, since it has become so easy of access.

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### GENERAL NOTES.

**Botany and the American Association.**—The Minneapolis meeting of the American Association for the Advancement of Science last year gave an impetus to the botanical interests in the Association, which promises to yield good results in bringing botanists more into each other's society. A Botanical Club was formed, and a committee appointed to arrange for the meeting in Philadelphia. This committee began its labors in April, and has since steadily endeavored to do what it could for the interests of the botanical members.

The following announcements can now be made for the Philadelphia meeting: The Association opens on Thursday morning, September 4th. During Thursday and Friday the botanical headquarters will be at the Academy of Natural Sciences, corner of 19th and Race Streets, where a committee will be in attendance to receive and introduce all members as they report themselves, to welcome them to the privileges of the Library and Herbarium of the Academy, and as far as possible to promote acquaintance and good fellowship. This committee will also be in charge of the registry book of the Club, in which it is hoped every member of the Association interested in botany will register as soon as possible after arrival. This is the only requisite to becoming a member of the Club, entitled to all the privileges of the same.

The Association will devote Saturday, September 6th, to excursions. The special botanical excursion for this day will be to the pine barrens of New Jersey, the richness of whose flora has become quite proverbial. Those interested in cryptogamic plants will doubtless have the pleasure of Mr. J. B. Ellis' leadership, whose extensive knowledge of fungi in particular, and thorough acquaintance with the region, will be of great service. Those more inclined to phanerogamic botany will find no lack of leaders. After devoting sufficient time to botanizing the general excursion of the Association to the seaside will be overtaken, and the remainder of the day passed in connection with it. There will also be excursions by the Association at the same time to the Delaware Water Gap, and to the anthracite regions, which those preferring can accompany.

Monday evening, September 8th, is the regular monthly meeting of the Botanical Section of the Philadelphia Academy of Sciences. The Section extends an invitation to the Botanical Club of the Association, the Torrey Botanical Club, of New York City, and to other visiting botanists to be present. The usual exercises will be abbreviated and supplemented by short addresses from eminent botanists. It is anticipated that Mr. John Ball, of England, who is now traveling in the western part of the United States, will be willing to give

some of his impressions of our country as compared with Europe. Dr. Asa Gray, whom we all revere as the Nestor of American botanical science, will also be present. Altogether the occasion will be one of unusual interest. The exercises will be concluded by a reception, giving an excellent opportunity for social enjoyment and the acquisition of stray bits of information.

At some time during the week there will be an excursion of botanists to the Bartram house and garden at Kingessing, a place of much historic interest from its associations with the early botanist, whom Linnæus called "the greatest natural botanist in the world." He died in 1777. The place is yet much as he left it. The house he built with his own hands, and many of the trees he planted are still there. The old cypress tree, some thirty feet round, will show that it does not take numerous centuries to make a large tree. Some fine specimens of *Rhododendron punctatum* were there recently, and may be still, a shrub we do not find often, even in its native North Carolina. A very good specimen of the rare *Quercus lyrata* is standing, together with a number of rare southern trees not often seen elsewhere.

Other excursions will be announced during the week. The meetings of the Club will be held at such times as are found most convenient, at which the reading of papers, discussions, and reports of committees will be in order.

All announcements of time and place of meeting, excursions, or other matters pertaining to the Club will be given on the daily programme of the Association.

Probably the point of most interest to botanists will be the botanical treasures of the Academy of Sciences. Here is to be found Barton's herbarium, a professor in the University of Pennsylvania and author of a work on botany, who died in 1815. The great herbarium of Schweinitz, one of the most widely known of early American general botanists, was supposed to contain 20,000 species when deposited in the Academy, but would not number so many now, owing to the degradation of many forms to mere synonyms. He was one of the earliest students of our fungi and fresh-water algae, and his herbarium contains a large number of type specimens. Here is also the fine herbarium of Dr. Short, which is kept separate from the general collection of the Academy in accordance with an agreement with the heirs. There are also numbers of specimens of Pursh, Rafinesque, Baldwin, Darlington, Le Conte, and other famous botanists of the past, as well as of most of those who give honor to the science to-day. All these collections are arranged in a single universal series, with the exception of Dr. Short's, as before noted. As fast as accessions are received, they are poisoned and labeled, and at once put in place. Afterwards they are permanently mounted, as time for the work can be secured. By means of a reference index a stranger is able to find what is wanted in a few moments. The Academy also possesses a duplicate North American herbarium for convenience of ready reference. The total herbarium probably reaches nearly 50,000 species; but this is only a guess, for no count has been made. Mr. John H. Redfield is the conservator of the collection, and by his special study of ferns has added much to its completeness in this particular.

The director of the Botanical Section of the Academy is Dr. Ruschenberger, who has done excellent service to science; the vice-director is the widely-known botanist Thomas Meehan, who is also one of the two vice-presidents of the Academy. F. Lamson Scribner, now becoming well known as an able agrostologist, is the secretary, and the corresponding secretary is Isaac C. Martindale, whose private herbarium and botanical library many of us would envy. All these are business men without any professional vacation, and they have a

right to feel proud of their voluntary tasks on this good work. Mr. Isaac Burk should also be mentioned for the large amount of labor he has bestowed on the collection; and the whole Section, indeed, of which there are some twenty members, do all they can. It will be one of the profitable experiences of a visit to Philadelphia to note what earnest volunteers can do for the science when persistent, and determined to do good work.

The herbarium of Muhlenberg, an early botanist of much fame, is deposited with the Philosophical Society.

The very rich flora of Philadelphia and vicinity will attract collectors, and many rare plants are also to be found here. The great Fairmount Park, especially the valley of the Wissahickon and the horticultural conservatory are deserving of the attention of botanists.

The features of the meeting so far mentioned are entirely in addition to those provided by the general Association, for it is intended that the botanical meetings and excursions shall in no wise conflict with those of the Association. That this object, and the best welfare of the botanists may be secured, the Botanical Section of the Academy has appointed a committee of five to co-operate during the meeting with the committee of the Club; this committee consists of Isaac C. Martindale, Prof. J. T. Rothrock, Pr. J. Bernard Brinton, Wm. C. Stevenson, Jr., and Jos. O. Schimmel.

The announcements for the general Association are too long to be given here, and all who are not yet members should write the local secretary, Prof. H. Carvill Lewis, Academy of Sciences, Philadelphia, for the Local Committee's circular. We may, however, mention the lectures on Thursday, Friday and Tuesday evenings, September 4, 5 and 9, the reception at the Academy of Fine Arts, and the lawn party at Haverford College. The International Electrical Exhibition will be open at this time, and must prove very attractive. After the final adjournment, some long excursions of special interest will be given.

The British botanists who have already notified the Local Committee of their intention of attending the meeting are John Ball, F. R. S., F. L. S., M. R. I. A.; A. W. Bennett, F. L. S., representing the Royal Microscopical Society; Wm. Carruthers, F. R. S., F. L. S., F. G. S., from the British Museum; and Wm. Caldwell Crawford, delegate of the Royal Botanical Society of Edinburgh. Sir Joseph Hooker, Prof. W. R. McNab, and Sir John Lubbock are expected at the British Association in Montreal, and may attend at Philadelphia, but of this no definite information has been received.

It still remains to say a word in reference to the Botanical Club itself, in order that no misapprehension may arise in regard to its scope and aim, and relation to the general Association. An Entomological Club has existed in connection with the Association for a number of years, and it was in emulation of the advantages secured to its members that the botanists in attendance last year at Minneapolis proposed the Botanical Club. It was organized with the slightest formality possible, and set before itself the task of promoting acquaintance and fraternal interest among the botanical members of the Association. It is not a part of the general Association, but receives its hearty sanction and encouragement; only those who are already members of the Association are eligible to membership in the Club; instead of diverting interest from the biological section of the Association, it hopes to indirectly aid in building up a larger interest in it, so far as botany is concerned. The Club will listen to short papers, and minor notes and observations, while the weightier articles will undoubtedly be presented before the section of biology.

J. C. ARTHUR,  
J. H. REDFIELD,  
THOMAS MEEHAN,  
*Committee.*

**Æcidium Ranunculacearum DC.**—Under this name several fungi having distinct life histories have been confounded. Schröter first pointed out that the æcidium on *Ranunculus ficaria* was a heteroecismal species connected with *Uromyces Poe*, and distinct from the *Uromyces ficariae* with which Fuckel, Cooke and other writers had associated it. At the present time the generally accepted view of the relationship of the *Ranunculi æcidia* is as follows: the æcidium on

Ranunculus ficaria belongs to <i>Uromyces Poe</i> ;			
“	repens belongs to	“	dactylidis;
“	acris belongs to	“	dactylidis;
“	bulbosus belongs to	“	dactylidis.

Cornu has recently shown, however, that *Puccinia arundinacea* has its æcidium upon *R. repens*, while Rostrup and myself hold the view that this æcidium is connected with *U. Poe*, as the æcidium on *R. ficaria* is. Such being the state of the case, I have during the past two years conducted a series of experimental cultures with the *Ranunculi æcidia*. These experiments are not yet complete, but I have evidence that there are two æcidia upon *R. repens*, (1) that of *Uromyces Poe*, and (2) that of *Puccinia Magnusiana*. Both these æcidia resemble each other closely, the one connected with *P. Magnusiana* being, however, rather later in the time of its appearance than that of *U. Poe*. The æcidia of *U. dactylidis*, I have reason to believe, does not occur on *R. repens*, but is confined to *R. bulbosus*. The æcidium on *R. acris* has a distinct life history, which I am at present endeavoring to work out.—CHARLES B. FLOWRIGHT, *King's Lynn, England*.

**Variation and Human Interference.**—MR. EDITOR—In reply to the communication on p. 98, signed A. G., I will remark that I do not consider the double flowers or *Thalictrum anemonides*, etc., as *particularly* favorable to man's wishes, but as an instance of teratological variation. Quoting from my previous communications, on p. 79, BOT. GAZETTE, “It seems to me that where variation of a nature favorable to man's wishes is found in plants, and not especially beneficial to the plant, that such variation suggests human interference and points towards a prehistoric cultivation.” In the January number, p. 8, I say, “We can even go further and say that if the agency of man induces numerous variations favorable to man's wants in a species, then that this presence of numerous variations in a species, of a kind favorable to man, indicates a previous agency of man.”

I might perhaps have ended my communications somewhat more plainly; yet I much believe that I have given prominence to an idea which may, perhaps, upon investigation, prove useful. It will be admitted that we have feral plants or escapes, and wild plants or indigenes. Some years since M. Villemain attempted the ennobling of the wild carrot and parsnip; it is said he succeeded with the carrot. Professor Buckman, in trying like experiments, succeeded with the parsnip, but could make no impression upon the carrot. (Gard. Chron., 1862, p. 721.) It seems a plausible explanation of the difference that the one commenced with a feral, the other with a wild plant, and hence the divergence in the results. Should extended trials prove the correctness of such

an explanation, it certainly will answer to reason from the opposite direction, viz: that a quick response of a wild plant to cultivation, in changes that are *favorable to man's desires*, but not *especially beneficial to the plant*, is indicative that the supposed wild plant is really feral—especially if such changes are of a nature beneficial to man, yet unfavorable to the plant. Illustrations of this latter proposition seem quite numerous, as, for a general rule in vegetable plants, improvement in form and quality is usually coincident with a lessened ability of the plant to take care of itself, and the highly improved forms seem incapable of becoming feral.

I will say no more, however, as these and allied matters are yet under investigation, but there is indeed a need of an agricultural botany, to be studied under the domination of the evolutionary idea of man as a factor in variation.  
—E. LEWIS STURTEVANT.

**Keeness of Observation.**—After studying botany for three weeks, it was three days more before a single one of the Freshman class of Michigan Agricultural College discovered that the central odd leaflet at the tip of the midrib of a leaf of the mountain ash was usually symmetrical, although they soon discovered that the side leaflets were fullest on the lower edge.

Last year, while studying leaves, it was two days before any member of the Freshman class discovered that the leaf of the common barberry had two joints in following down to the main stem.

Of the members of such a class, very few will see that the geranium has a long torus between the five pistils. Without telling, one in five young students may see that the anthers of Lupine are not all alike; one in three will discover that the anthers of the Mallow are one-celled and kidney-shaped; one in ten, that the anthers are much in advance of the styles; about one in fifteen discovered that although the leaves were opposite, a bud usually appears only in the axil of one of each pair of those of the Sweet William (*Lychnis*). Above this bud is a slight canal, somewhat like that on the cornstalk near and above an ear of corn.—W. J. BEAL, *Agricultural College, Lansing, Mich.*

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## EDITORIAL NOTES

A LABORATORY for researches on bacteria has been established at Munich.

J. C. GRÖNEWEGEN, of the Botanic Garden of Amsterdam, died in June at the age of 73 years.

PROF. J. H. R. GOEPPERT, the phytopaleontologist, lately died at Breslau in his eighty-fourth year.

OBERLIN COLLEGE has secured the herbarium of Dr. Beardslee, of Painesville, Ohio, containing about 3000 species.

A SECOND EDITION of Prof. W. J. Beal's lecture on the new botany has been issued by Chas. H. Marot, Philadelphia.